

OPA

DEPARTMENT OF THE ARMY
OMAHA DISTRICT, CORPS OF ENGINEERS
FORT CROOK AREA
P.O. BOX 13287
OFFUTT AFB, NEBRASKA 68113-0287



REPLY TO
ATTENTION OF

CEMRO-CD-FC (200c)

7 December 1994

USEPA, Region VIII
ATTN: Mr. Hays Griswold
999 18th Street, Suite 500
Denver, Colorado 80202-2405

Dear Mr. Griswold,

As per our conversation on November 29, 1994; our office is submitting, for your review, the enclosed technical product bulletin which describes the biological organism (BioGee HC) planned for use at the Naples Truck Stop Project located in Naples, Utah. (Attachment 1)

The "BioGee HC" is a listed biological additive currently on the National Contingency Plan Product Schedule and is distributed by BioGee International, Inc.

The organism is cultured and supplied to BioGee International by Richards Laboratories located in Salt Lake City, Utah, as certified by the attached letter. (Attachment 2) Richards Laboratory also supplied the same cultured organism for inoculation into the bioremediation project at the Naples truck stop.

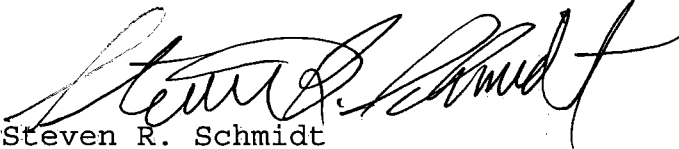
The inoculation of the biological agent with the indigenous microorganisms has proven to be very effective in the removal and treatment of the contaminated groundwater based on the mass balance results obtained during the pilot study process. A continual sampling and monitoring plan will be implemented during the operation and maintenance phase of the biological treatment system.

A table which identifies frequency and protocols for this effort is attached for your review. (Attachment 3)

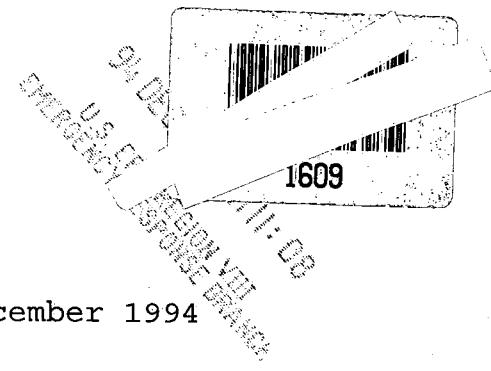
If our office can be of further assistance in this matter, please contact Mr. Larry Leahy, of my staff, at (402) 293-2531.

Sincerely,

Attachments (3)


Steven R. Schmidt
Administrative Contracting
Officer

FILE PLAIN
92.05.05



TECHNICAL PRODUCT BULLETIN #B-35
EMERGENCY RESPONSE DIVISION
DATE LISTED: June 21, 1991

"BIOGEE HC"
(Formerly Bio-Solution HC)

I. NAME, BRAND, OR TRADEMARK

BioGEE HC

Type of Product: Biological Additive

II. NAME, ADDRESS, AND TELEPHONE NUMBER OF MANUFACTURER

BioGee International, Inc.
Two Park Ten Place, Suite 100
16300 Katy Freeway
Houston, TX 77084
Tel: (713) 578-3111
Tel: (800) 298-3111
Fax: (713) 578-1114
Contact: Mr. Trey Barber

III. NAME, ADDRESS, AND TELEPHONE NUMBER OF PRIMARY DISTRIBUTORS

BioGee International, Inc.
Two Park Ten Place, Suite 100
16300 Katy Freeway
Houston, TX 77084
Tel: (713) 578-3111
Tel: (800) 298-3111
Fax: (713) 578-1114
(Mr. Trey Barber or Ken Roberts)

VI. SPECIAL HANDLING AND WORKER PRECAUTIONS FOR STORAGE AND FIELD APPLICATION

1. Flammability:

Not Applicable

2. Ventilation:

None

BIOGEE HC 02/18/93

3. Skin and eye contact; protective clothing; treatment in case of contact:

The use of protective gloves and chemical goggles is recommended when using this product.

4. a. Maximum storage temperature: 140 F
 b. Minimum storage temperature: 32 F
 c. Optimum storage temperature range: 34 F to 140 F

V. SHELF LIFE

The shelf life of BIOGEE HC is 2 years.

VI. RECOMMENDED APPLICATION PROCEDURE

1. Application Method:

Spray

2. Concentration/Application Rate:

Use one gallon of BioGEE HC to treat 4,000 square feet of oil contaminated water or one (1) cubic yard of oil contaminated soil.

3. Conditions for Use:

The optimum temperature for BIOGEE HC is 83 F. Variations in sea water salinity may have slight effects on the product's effectiveness.

VII. TOXICITY AND EFFECTIVENESS

1. Toxicity:

Not applicable

2. Effectiveness:

Based on a 300,000 gallon volume, 2,700 gallons of oil in the water was reduced to 621 gallons in a two week period. A final water sample taken after 29 days treatment with BIOGEE HC showed 0.04% oil contamination as against 9.71% for initial sample.

Green algae and many protozoan life forms were present, indicating that the water was no longer toxic.

VIII. MICROBIOLOGICAL ANALYSIS

1. Listing of all microorganisms by species and percentage in the composition:

CONFIDENTIAL

2. Optimum pH, temperature, and salinity ranges for use of the additive:

Optimum pH: 7.0, (4.5 to 9.5)

Optimum temperature: 83 F, (34 F to 140 F)

Optimum salinity: None

3. Minimum and maximum pH, temperature, and salinity levels below or above which the effectiveness of the additive is reduced to half its optimum capacity:

pH: <4.5 and >9.5

Temperature: <40 F and >140 F

Salinity: None, (Variations of salinity may have slight effects).

4. Special nutrient requirements

There are no special nutrient requirements.

5. Test results regarding the determination of the presence of the following:

Salmonella:	None found
Fecal coliform:	None found
Shigella:	None found
Staphylococcus coagulase positive:	None found
Beta hemolytic Streptococci:	None found

**RICHARDS
LABORATORIES**

INC
55 East Center • Pleasant Grove, Utah 84062 • (801) 785-2600 • Salt Lake: (801) 355-5579 • Water: (800) 483-1210 • Fax: (801) 785-2621

December 1, 1994

To Whom It May Concern:

This is to advise you that Richards Industrial Laboratory supplies HC bacteria to BioGee International which is the same strain we are currently using in the pilot study at the Naples Truck Stop site in Vernal, Utah.

If there are any questions, please feel free to contact me.

Sincerely,



Robert Richards, Vice-President
Richards Industrial Microbiology

RR/jp

DRAFT*
SAMPLING AND ANALYSIS SCHEDULE
BIOREMEDIATION TREATMENT SYSTEM
NAPLES TRUCK STOP
VERNAL, UTAH

FIRST TWO MONTHS OF OPERATION

<u>FREQUENCY</u>	<u>MATRIX</u>	<u>SAMPLE LOCATION</u>	<u>PARAMETER</u>	<u>TEST METHOD</u>
WEEKLY	WATER	WATER INFLUENT TO FIRST BIO BED	BTEX	EPA 8020
WEEKLY	WATER	WATER EFFLUENT FROM FIRST BIO BED	BTEX	EPA 8020
WEEKLY	WATER	EFFLUENT TO POTW	BTEX	EPA 8020
			TPH (GASOLINE)	EPA 8015
WEEKLY	GAS	VAPOR EFFLUENT TO ATMOSPHERE	pH	N/A
MONTHLY	GAS	VAPOR INFLUENT TO FIRST BIO TANK	VOCs	H-Nu
MONTHLY	GAS	VAPOR EFFLUENT FROM FIRST BIO TANK	BTEX	EPA 8020
MONTHLY	GAS	VAPOR EFFLUENT TO ATMOSPHERE	BTEX	EPA 8020
			BTEX	EPA 8020

PERIOD BEGINNING AFTER FIRST TWO MONTHS OF OPERATION

<u>FREQUENCY</u>	<u>MATRIX</u>	<u>SAMPLE LOCATION</u>	<u>PARAMETER</u>	<u>TEST METHOD</u>
MONTHLY	WATER	EFFLUENT TO POTW	BTEX	EPA 8020
			TPH (GASOLINE)	EPA 8015
			pH	N/A
QUARTERLY	WATER	WATER INFLUENT TO FIRST BIO BED	BTEX	EPA 8020
QUARTERLY	GAS	VAPOR INFLUENT TO FIRST BIO TANK	BTEX	EPA 8020
QUARTERLY	GAS	VAPOR EFFLUENT FROM FIRST BIO TANK	BTEX	EPA 8020

*NOTE: The Final schedule will be issued with the final approved O&M manual.